

EXHAUST GAS GRAVE DANGER

Yale University Professor Gives Warning About Warming Engine

Running the engine of a car to warm it up in a small closed garage is one of the most dangerous things that a man can do, according to Professor Vandell Henderson of Yale university. It is almost as dangerous as blowing out the gas before going to bed, Professor Henderson says.

"The exhaust gas from an engine and city illuminating gas both contain large proportions of carbon monoxide," says Professor Henderson. "A small car produces as much carbon monoxide in a minute as a gas burner will flow in three or four hours, and a large car produces even more of this gas."

"These facts have been shown recently by A. C. Fieldner and his associates of the United States bureau of mines."

Professor Henderson, consulting physicist of the bureau of mines, has shown that if the exhaust gas in a small closed garage (10 feet by 20 feet) the car, when warming up, contaminates the air to a deadly concentration within three or four minutes.

"These investigations were carried out for the New York and New Jersey tunnel commissions, which are constructing a vehicular tunnel under the Hudson river. The tunnel will be large enough for two lines of passenger cars or trucks each way, and will relieve automobilists of the delay involved in crossing the river on the ferries. Elaborate plans are being made by the engineers for properly ventilating the tubes to keep them clear of smoke and gas."

KEEP ENGINE IN GOOD SHAPE

Radiation, Friction and Resistance Cause Power of Motor to Dwindle

Importance of keeping the engine in good shape to get the most out of it is evidenced by a diagram of power losses in the average car.

The diagram, prepared by automotive engineers, shows the dispersion of energy from fuel as it passes through the engine of the average touring car traveling at a speed of 40 miles an hour on direct drive.

Through radiation, friction and power dwindles down to a little above 5 per cent for the actual movement of the car.

RADIATION

With a perfect motor, engineers have found that more than 35 per cent of the fuel's heat energy is lost at the start by water cooling. Direct radiation by exhaust gas takes another 35 per cent.

Resistance through exhaust pipes, muffler and by engine friction bring the remaining power to about 20.3 per cent of the original thermal capacity of the fuel.

That is all the power the engine transmits to the car. The rest represents the amount of energy remaining for useful work.

Of this 20.3 per cent, however, more than 5 per cent is lost in friction from transmission and through the tires. Air resistance takes another 7 per cent, which leaves only 5.4 per cent as the excess power that can be obtained.

DEPENDENT ON CAR

Each design of engine and car has a different energy diagram, but there is no much difference in the percentages of power losses.

The highest efficiency obtained in the best types of stationary internal combustion engines is about 35 per cent. This is the Diesel type. Modern high speed automobile racing and airplane engines approach within a few points of this value.

AUTO IS NEEDED IN AUSTRALIA

Gigantic Distances Can Only Be Covered With Use of Motor Cars

WASHINGTON, April 1.—Australia is one of the great countries of the world where Old Dobbin has not been entirely eclipsed by the advent of the automobile.

Secretary of Commerce Herbert Hoover has just made public a report from A. W. Perrin, lately United States trade commissioner at Melbourne, which says in part:

"There are still plenty of horses in Australia (2,500,000 in 1921) but their use is confined to heavy trucking and to herding cattle and sheep. The distance of the stations from town, the size of the pastures and the flatness of the country make the automobile the most economical method of covering a property, especially as in ordinary weather it is not necessary to stick to a road. The country roads are ordinarily good for motoring although 'hogging' is the common experience after a heavy rain."

"The overstock of motor cars in Australia, which six months ago was seriously depressing the market has recently cleared up," the report continues. "Australia was the third largest purchaser of American cars during 1921 and her imports of motor cars from the United States were three times as many as those from the United Kingdom. Our shipments of cars to Australia numbered 3,700 in 1921 and 3,905 in 1920, a remarkable showing in the face of the adverse conditions prevailing during the first six months of the year when the low conversion rate of Australian sterling, restrictions of remittances to foreign countries and other factors were reducing all imports to a minimum."

"The vast area of Australia, which is approximately the size of the United States, with but 26,000 miles of railways, compared with our 25,000, and one small navigable river, makes travel by motor imperative in the greater part of the continent, particularly in the pastoral regions of New South Wales, Queensland and Western Australia. Many big operators own or manage several sheep ranches, or 'stations,' as they are called in Australia, and require rapid locomotion to be able to oversee them. One operator whom the writer has several times accompanied on his rounds, owns five stations averaging seventy-five miles apart and has to visit two of them weekly and the others at least twice a month. A car is kept on each of these properties, as well as one in Melbourne, where the sheep and wool are marketed. His annual bill for gasoline, lubricating oil and repairs alone exceeds 1,000 pounds, which he declares to be an absolutely necessary expense, as without the cars he would be unable to carry on the business."

"That the motor for cars is far from saturated is apparent from the fact that Australia, though possessing about one-tenth of the rail facilities of the United States in approximately the same area, has only one car to sixty-seven inhabitants, while the United States has one to every ten and Canada one to every sixteen. In addition, the average Australian income is higher than the average American or Canadian, and the proportion of population that can afford a car at American prices is probably considerably larger than is the percentage of possible purchasers in the United States. Ninety per cent of the cars used in Australia are running on business affairs. That is why the demand has held up so well during the depression—the automobile is a first necessity in Australia."

DISK WHEEL IS MORE POPULAR

New Style Coming to Front, Although Artillery Type Holds Preference

The artillery type of wood wheel still holds preference with the car makers of this country, with more than fifty manufacturers using it. While this is true, it is equally true that other types of wheels have gained in favor and in this connection mention must be made of the disk wheel.

It now is possible to get disk steel wheels for practically every make of car, and two makers, Willis Sainte Claire and Maxwell, are furnishing them as regular equipment on all models.

It is quite the thing now for car makers to furnish their sport models with disk wheels and it usually is on these cars that this type of wheel shows up to best advantage, so far as looks are concerned. Easier riding qualities, rapidity of wheel change, and the ability to keep them clean are some of the major things claimed for the disk wheel.

While on the subject of disk wheel mention might be made of the word disk wheel recently developed. The wheels are made from same material of wood as used for airplane propellers and are laminated in such a way that the grain in each lamination runs in a different direction. Those wheels are claimed to be of about the same weight as spoked wheels, but to have four times the lateral strength.

With many of the disk wheels it is not necessary to carry a spare, only rim being necessary. On others the entire wheel is changed.

There has been tendency of late to reduce the wheel diameter on cars, and this is a good example. This car now uses 32x3 inch tires, where formerly the tires were 35x5. The lowering of the car by the use of smaller wheels is reflected in the general appearance.

The tendency for smaller wheel diameter is probably largely due to the fact that smaller and snappier engines are used in the cars today and to get good acceleration and performance, which the American car owner seems to want, it is necessary that the wheel diameter be not too large, because of the fact that it takes much longer to set a wheel of large diameter in motion.

The wire wheel still remains popular with many makers and is fitted as stock equipment or as optional equipment on more than thirty cars. Easy riding qualities always have been claimed for the wire wheel and this is largely due to the fact that the weight is centered in the hub and that the car weight is suspended from the top spokes, whereas in the wood wheel the weight is taken on the spokes at the bottom. Road shocks, therefore, are more readily transmitted through the wood spokes to hub of the wheel than in a wire wheel. With a wire wheel, it is claimed acceleration is much improved because the wheel is set in motion more easily by virtue of the lighter rim and spokes. The hub of a wire wheel, wherein is centered the weight of the wheel, literally wraps the spokes about it and the spokes in turn pull the light rim after them.

TOURISTS TO GET WELCOME

Here are the ten commandments of the tourist information agencies as suggested by the Denver Tourist bureau, with the idea of greater co-operation from chambers of commerce and municipalities of Colorado:

- 1.—An exchange of scenic, industrial and agricultural literature through tourist information racks means greater return in travel sales for all communities.
- 2.—The automobile camp is another clearing house for the local distribution of tourist dollars to business interests.
- 3.—Don't worry about the tourist "crop." It has no failures and should be given equal consideration with other harvests.
- 4.—Consult your hotel and restaurant men as to how they can improve their service; it may be good now, but try to make it better.
- 5.—A tourist's sense of appreciation is as keen riding in a flivver as in a railroad observation car, so clean up and paint up your town.
- 6.—Dedicate an All-States avenue in the camp grounds and show civic appreciation of their presence in an All-States day celebration for tourists in the height of the season.
- 7.—Appoint committees to greet tourists and to hand them literature pertaining to your district and regarding side trips.
- 8.—Encourage an exchange of camp facilities and regulate the service rendered.
- 9.—Promote a standardization of today are the citizen to tomorrow, Denver Post.
- 10.—Certain spots in Russia, India and Persia have always been eaten for their health-giving properties.

LONDON PLANS TO STOP THEFTS

Each Car to Be Registered With Insurance Company to Foil Crooks

(By NEA Service)
LONDON, March 25.—To stop thefts register every automobile in the country with the insurance companies. That is the plan these companies check up on each car entered for insurance, to be certain of its rightful ownership.

This is the idea of F. S. Broad, manager of the Bell Assurance association, which has been investigating England's method of theft prevention.

The present system consists of issuing registration books and license discs to each automobile owner. But, counterfeit books and discs have appeared and have made it easy for anyone to prove his ownership of a stolen car.

COMPLETE RECORDS

According to Broad's plan, every car made in England, besides those exported and imported, would be recorded in a national card index system. The most important information on each card would be the chassis number.

If a car is stolen it would be found as soon as application was made for its insurance, says Broad. By referring to the central register the insurance agent would find the car had been stolen. At present there is no such checkup in any country.

Altering the chassis number could not help the thief to circumvent this system, for the new number would be found to belong to another car, or to be fictitious.

Broad's system would make automobiles theftproof, especially in the United States, he says, where there are laws governing the transfer of automobiles. It would not cost the motorist anything additional because the insurance companies would assume all costs as part of their business.

Some 45,000 stitches are required to make the ordinary suit of clothes.

CAR REPAIRING TIME IS HERE

Garage Men Are Sending Out Warning to Prepare for Rush Season

Better get your car fixed early this spring if you want to have it ready on time. Garages, repairmen and accessory dealers are sending out warnings to their customers that the spring rush will beat all records. There are far more cars than ever before, and not many more shops.

Wire motorists are having their cars repaired now, before the rush starts. They will get quick service, careful attention and prompt delivery of repair parts. Two weeks or a month later it may take twice or three times as long for the same work.

In expectation of the flood of repair business that is coming, accessory dealers and repairmen have started a "Repair It Now" campaign. The whole object of this campaign is to show motorists the wisdom of having needed repairs made now, rather than later. The "Repair It Now" campaign will help to ease off the peak load of work that would otherwise swamp the accessory and repair trade.

MUCH GASOLINE IS STORED UP

Stock Increased 114,000,000 Gallons in January, Figures Show

WASHINGTON, March 25.—The millions of motorists concerned over the matter of the nation's gasoline supply may experience at least temporary relief in the announcement of the United States Bureau of Mines that the stocks of this vital liquid fuel were increased in the month of January by 114,000,000 gallons. On February 1, there was a reserve of 705,700,000 gallons, which is 130,000,000 gallons more than for the corresponding date in 1921. The figures are rapidly approaching the 800,000,000 gallon record mark made in May of last year. Production of gasoline in January amounted to 444,622,783 gallons; imports were 8,250,333 gallons; domestic consumption amounted to 232,715,165 gallons; exports to 49,866,319 gallons; and shipments to insular possessions, 675,659 gallons. Present stocks are equivalent to 56 days' supply based on the total daily average consumption for 1921. Operative refineries in the United States numbered 292 on February 1, with an indicated daily capacity of 1,753,940 barrels. Plants running continued to operate on an 80 per cent basis.

An increased demand for gas and fuel oils may be anticipated if the pending coal strike becomes a reality. Stocks of these oils on hand February 1 amounted to 1,319,451,359 gallons. Based on the daily average domestic consumption for 1921, these stocks are equivalent to 63 days' supply. The production of these oils in January amounted to 558,110,877 gallons.

During January the nation's output for kerosene amounted to 172,917,141 gallons, an increase of 2,500,000 gallons over the preceding month. The fact that despite this increase in production, stocks of kerosene decreased 13,500,000 gallons indicates enlivening in the movement of this product.

Stocks of lubricating oil on hand February 1 were 245,000,000 gallons, an increase of 28,465,000 gallons over the month previous.

Automobiles in the United States require 509,250,000 pounds of crude rubber annually.

Great Britain has 3000 motor truck lines.

A watch which took 20 years to make has recently been completed in London.

RECKLESS TO BE RIDICULED

American Auto Association Will Select Name Conveying Opprobrium

Believing that there is need for an outstanding and pointed term for reckless automobile drivers—a term that will at once convey ridicule and opprobrium—the American Automobile association has inaugurated a campaign to unearth a fitting sobriquet.

The plan of the A. A. A. is to brand the reckless motorist with a name that will be comprehensive and become as popular as the term "jay-walker," which is now applied to the careless pedestrian. For such a term the organization is offering \$25 cash. The hunt is to be conducted in contest form and all persons having what they consider a suitable appellation for reckless motorists are invited to submit their choice to the national headquarters of the A. A. A. at Washington.

In a statement covering its reasons for seeking a brand for reckless motorists, the A. A. A. sets forth:

"The American Automobile association wants a name which will brand reckless motorists just as 'jay-walker' brands careless pedestrians. A jay-walker is a person not sufficiently civilized to cross the street at the proper crossings. He or she endangers public safety and obstructs traffic. The jay-walker deserves prosecution, but even more effective is the ridicule carried by this term."

"The millions of orderly and careful motorists in the country suffer because of the few thousands who are rowdy and careless. A name is wanted to show these drivers that they do not 'belong.' Police records show that a heavy percentage of accidents is due to the recklessness of pedestrians, but that places a further responsibility upon the motorist to take extra precautions for safety."

"The contest, which is open to all, will close May 15 and the award will be made May 23. Persons wishing to submit names should address contest editor, American Automobile association, 1198 Sixteenth street, N. W., Washington, D. C."

CHICKENS ARE MORE CAUTIOUS

"I think that if it is possible to educate chickens to caution, it ought to be possible to educate human beings," said George M. Graham, at the Highways dinner of the National Automobile Chamber of Commerce recently.

"I notice the chicken is becoming very cautious. She is learning something and I say 'she' advisedly for I notice that the chicken that gets run over is always a hen."

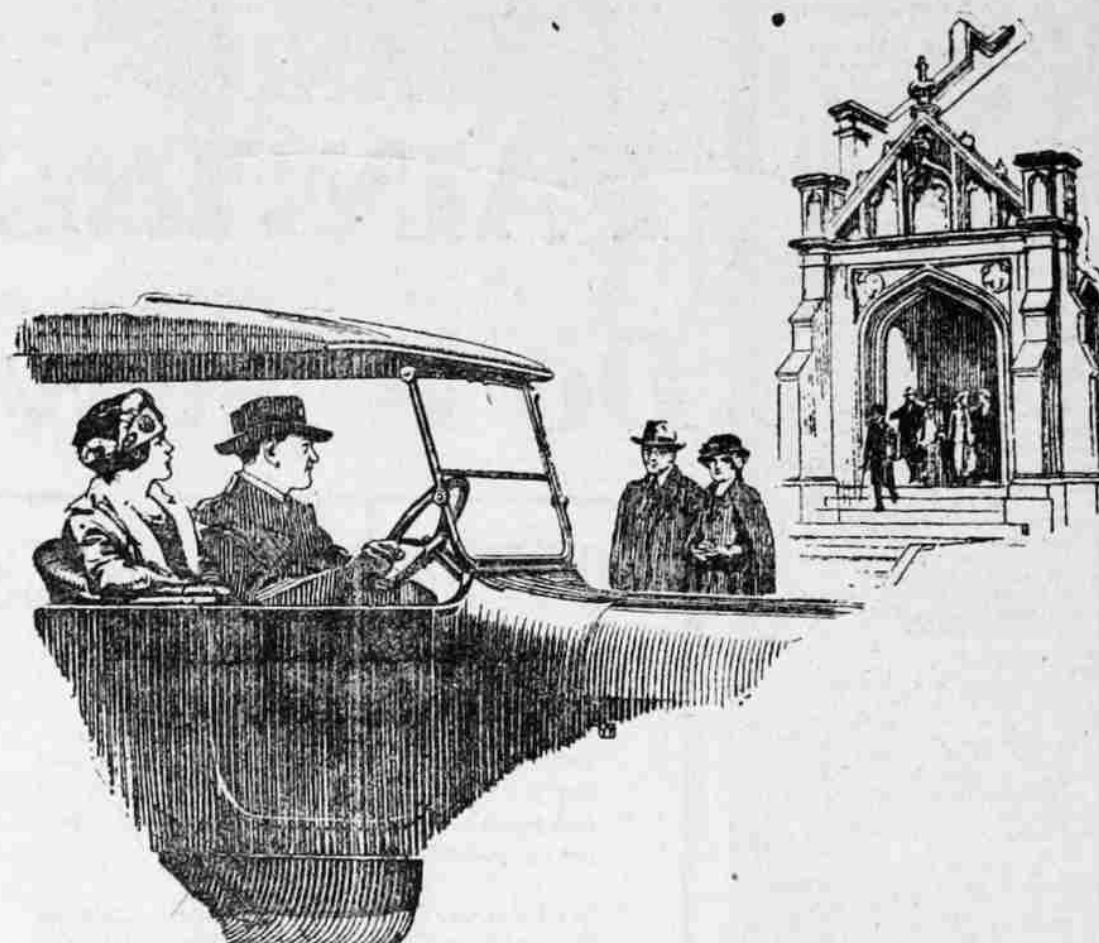
"The rooster stands in dignified state on the side of the road and prims tolerantly while the flurried hen tries to cross back and forth in front of the car five times."

"But since impulse of precaution born of maternal admonition comes to the mind of the hen of today and says, 'It is wisdom to stay on this side and let it go by.'"

"Now if hens with their mere modicum of brains can be trained that fit in safety, why not our children? It is simply a case of casting the meat-sage to them."

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PERHAPS no other single feature of the Nash Four has inspired so much favorable comment as the remarkable riding comfort with which it is endowed.

The reason for the surpassing ease with which it travels the roughest roads goes straight back to the new-type Nash springs which are formed of one great masterleaf, an increased number of scientifically graduated thinner and more flexible leaves, and a rebound plate that, in effect, forms a cushion between the body of the car and the rushing recoil from a road blow.

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HUDSON COACH

A NEW ONE

"Meeting the public demand for a quality enclosed car at a lower price level, the Hudson Motor Car company has announced a new five-passenger, closed model, the Hudson Coach."

"It is now possible," says L. L. Hains, manager of the Ogdén Motor Car Co., "for a motorist to buy an enclosed Super-Six at about the same price as an open car of any comparable make. Motorists who have long wanted Super-Six performance can now afford it and in an enclosed car at that."

"For many months Hudson officials have been experimenting in producing quality closed bodies at a moderate cost. They have felt that the public really prefers enclosed cars, and has held off from buying them only on a price basis. Working along these lines, the Hudson organization has developed an enclosed car which can be manufactured simply—that is, on modern principles—and yet retain all the characteristic quality and beauty of Hudson bodies."

"The Hudson Coach strikes a new note in body design. None of the features of superiority which have marked Hudson bodies for many years have been omitted, but through simplicity of manufacture."

"The interior dimensions of the Hudson Coach are ample. Five pas-

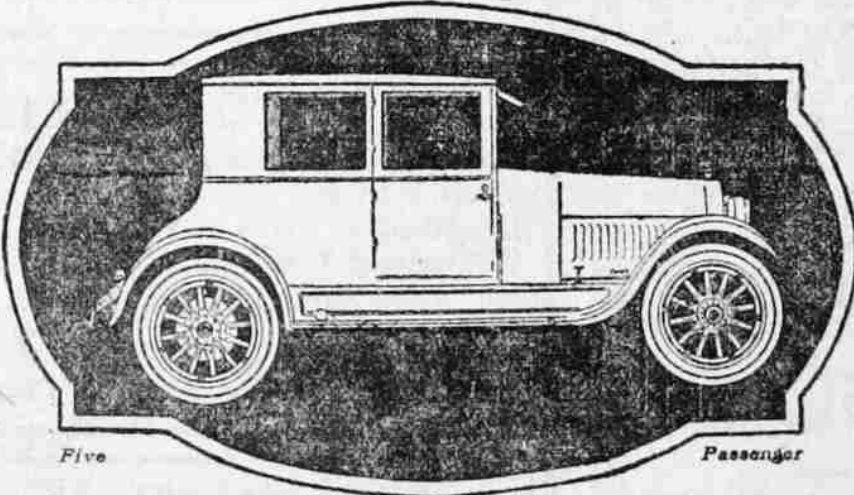
sengers are seated in entire comfort. Doors are wide, and swing well open for a convenient entrance. Each door hangs on four hinges, to prevent sagging and rattles.

"Upholstery, floor rugs, seats, window regulators—all these details reflect typical Hudson workmanship. Other conveniences include a sun visor, a coat-ventilator, an improved windshield, and a generous luggage compartment."

"One is attracted by the car's grace and sturdiness. The lines are different and striking, and decidedly pleasing to the eye."

"The Hudson organization feels that this enclosed car is distinct from any body type yet produced."

"The Coach is mounted on the standard Hudson chassis and is powered by the famous Super-Six motor."



The Coach

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